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BOOK REVIEW

CHAPMAN R.F. & DE BOER G. (eds): REGULATORY MECHANISMS IN INSECT FEEDING. Chapman & Hall, New York, London, 1995, 398 pp., ISBN 0-412-03141-8. Price GBP 59.00.

In the 1990's food relations have been the topic of several book chapters regarding the responses of insects to allelochemicals and, in particular, to feeding deterrents, and a book on host-plant selection was published (Bernays & Chapman, 1994). Nonetheless, a compendium dealing with various aspects of regulation of insect feeding has been lacking. The editors of this volume brought together an impressive group of 17 authors, chiefly from USA and UK, but also from Australia, Canada and The Netherlands. Most of the authors are outstanding specialists in specific aspects of the field. The thirteen chapters that compose the book are logically divided into the following four parts: Mechanics of feeding, Regulation of a meal, Long-term regulation of feeding, and Methods of controlling insect feeding.

The *mechanics of feeding* treats solid-food feeders and fluid-feeding insects separately, and a special chapter reviews the role of insects' saliva.

The second part of the volume, which covers the *regulation of a meal*, is introduced by a general chapter on chemosensory regulation. Leading authorities then separately analyse the following individual types of feeders: chewing insects, blood feeders, phloem sap feeders and carbohydrate feeders.

The next three chapters are devoted to *long-term regulation of feeding*. The chapter about nutritional homeostasis mainly discusses physiological control of nutrient intake and emphasizes that information on the nutritional quality of food must be integrated with information about the insect's current nutritional state.

The last part of the book covers *applied aspects* of feeding. Feeding stimulants used in baits that contain insecticides are discussed. In this biorational pest control, the goal is to reduce insecticide exposure to humans, while insecticide contact with pest insects is increased. The opposite type of biorational control is the use of feeding inhibitors that are based on the study of allelochemicals, which are secondary chemicals that protect plants against insect feeding. (It is surprising that the pioneer concepts of G. Fraenkel, reported in his two 1959 papers in Science and N.Y. Acad. Sci., have not been quoted here.) This method is rapidly becoming well-developed and addresses several levels of the feeding process: (1) feeding deterrents (eg. azadirachtin) are preingestive inhibitors that evoke rejection of the plant by changing sensory code; (2) ingestive inhibition acts at the level of salivary enzymes and musculature; (3) postingestive inhibition involves mostly digestive processes (by substances such as gossypol).

The volume is a critical review of recent trends in food sciences and is a useful complement to the 1994 book mentioned above.

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